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ST. MARY'S FALLS CANAL TRAFFIC.

The annual mile-tons report of the two St. Mary's Falls canals for the season of 1896, shows an enormous increase in the amount and value of freight which passed to and from Lake Superior last year, over any previous season. In 1895, the value of all articles was given at $159,575,129.43. In 1896 it amounted to the stupendous sum of $195,146,842.49, an increase in round numbers of about $36,000,000. With an increase of over a million tons in freight carried, the rate per mile-ton was materially lower, it being .99 mills in 1896, while it was 1.14 mills the preceding year. The cost of carrying freight was therefore considerably lessened. This is mainly attributable to the larger cargoes boats were able to carry, owing to the increased depth of water in the channels.

Table showing estimated value of freight through St. Mary's Falls Canals, Michigan and Ontario, 1896:

ITEMS.	Quantity.	Price per Unit.	Valuation.
Coal, anthracite, net tons ..	397,210	$4.75	$1,886,747.50
Coal, bituminous, net tons.	2,626,130	2.50	6,565,325.00
Flour, barrels	8,882,858	3.85	34,199,003.30
Wheat, bushels.....	63,256,463	.75	47,442,347.25
Grain (other than wheat) bu	27,448,071	.39	10,704,747.69
Manufactured iron, net tons	93,924	50.00	4,696,200.00
Pig iron, net tons	27,948	13.50	377,298.00
Salt, barrels.....	237,515	.75	178,136.25
Copper, net tons.....	116,872	200.00	23,374,400.00
Iron Ore, net tons.	7,909,250	3.25	25,705,065.00
Lumber, M. ft. B. M.....	684,986	12.50	8,562,325.00
Silver ore, net tons	240	112.00	26,880.00
Building stone, net tons....	17,731	10.00	177,310.00
Unclassified freight, net tons	520,851	60.00	31,251,060.00
			195146842.49

The average value per ton of freight for season of 1895 was $10.60, and for 1896, $12.02.

The foregoing estimates are the result of a discussion obtained from private information and a careful comparison with market reports. The comparison shows that there was an increase in the valuations last year over 1895 in hard and soft coal, flour, wheat, pig iron, iron ore, lumber, and a decrease in the valuation of grain other than wheat. Cereals amounted to 47 3-10 per cent of the total freight passing the canals.

MILES-TON REPORT, SEASON OF 1896.

Cost of carrying freight transported through St. Mary's Falls Canals, Michigan, and Sault Ste. Marie Canal, Canada.

ITEMS.	Quantity.	Price per Unit.	Amount.
Coal, net tons	3,023,340	$ .32	$ 967,468.80
Flour, barrels.	8,882,858	.11	977,114.38
Wheat, bushels.....	63,256,463	.02½	1,581,411.57
Grain (other than wheat) bu	27,448,071	.02¼	617,581.60
Manufactured iron, net tons	93,924	1.40	131,493.60
Pig iron, net tons	27,948	1.05	29,345.40
Salt, barrels.....	237,515	.15	35,627.25
Copper, net tons.....	116,782	1.95	227,900.40
Iron ore, net tons	7,909,250	.82	6,485,585.00
Lumber, M. ft. B. M.....	684,986	1.80	1,232,974.80
Silver ore and bullion, tons	240	2.33	559.20
Building stone, net tons....	17,731	1.50	26,596.50
Miscellaneous mdse. net tons	520,851	2.30	1,197,957.30
Total cost.....	.....	.....	13,511,615.80

NOTE.—In this table "tons" mean "net tons," of 2,000 pounds. The total amount of freight paid was $13,511,615.80, which, divided by the total "unit tons," 13,582,641,886, gives the cost per mile per ton as 99-100 miles. The average distance freight was carried was 836 4-10 miles, which is 6 4-10 miles more than in 1895.

The total cost of freight transportation in 1896 was $13,511,615.80. In 1895 the cost was $14,238,758.02. The nature of the data from which this was found is such that it includes the cost of loading and unloading. The average distance freight was carried in 1896, 836.4 miles, is the highest average distance until that time. In 1895 the average was 830 miles. The average cost per ton for carrying freight was 83.2 cents.

The number of registered craft which used the canal during the season was:

Steamers.....	509
Sails.....	350
Total.....	859

AMERICAN CRAFT.

CLASS.	No.	Regist'd Tonnage	Freight Tonnage	Passengers.	Valuation.
Steamers	467	495,362	11,392,046	20,421	$35,151,400
Sails	325	231,376	4,195,623	..... .	7,854,800
Total	792	726,738	15,587,669	20,421	$43,006,200

CANADIAN CRAFT.

CLASS.	No.	Regist'd Tonnage	Freight Tonnage	Passengers.	Valuation.
Steamers	42	21,364	486,043	16,645	$1,887,300
Sails	25	12,700	153,460	.....	248,000
Total	67	34,064	639,503	16,645	$2,135,300

Total passages by unregistered craft, when carrying freight—210. The total freight carried by American unregistered craft amounted to 3,629 tons, in 88 passages, making an average of 41 477-2000 tons freight per passage.

The total freight carried by Canadian unregistered craft mounted to 8,260 tons in 122 passages, making an average of 67 1410-2000 tons of freight per passage.

The Canadian freight was 647,763 tons, or 4 per cent of the total freight for the season.

Following is a summary of the above:

Total number of registered craft.....	859
Total passages by unregistered craft while carrying freight.....	210
Total freight carried by registered craft....	16,227,172 tons
Total freight carried by unregistered craft.....	11,889 tons
Total passengers.....	37,066
Total valuation of craft registered.....	$45,141,500

The total passages for the season amounted to 18,615, and 1,141 of these were by 72 crafts under 100 tons register, their aggregate registered tonnage being 1,977 and their average tonnage 28 tons; the freight carried by these craft during the season only amounted to 276 tons.

From the column of largest cargoes it is ascertained that there were 135 propellers that carried in their largest load 2,000 tons and upwards, and these 135 cargoes aggregated 336,300 tons and averaged 2,491 tons. There were thirty propellers which carried in their largest load 3,000 tons and upwards, aggregating 100,924 tons and averaging 3,364 tons; 14 propellers that carried in their largest load 4,000 tons and upwards aggregating 61,756 tons and averaging 4,411 tons; and 7 propellers that carried in their largest loads 5,000 tons and upwards, aggregating 36,132 tons and averaging 5,162 tons.

There were 33 sail vessels that carried 2,000 tons and upwards, aggregating 81,283 tons and averaging 2,463 tons; 13 sail vessels that carried 3,000 tons and upwards, aggregating 42,628 tons and averaging 3,279 tons; 7 sail vessels that carried 4,000 tons and upwards, aggregating 32,607 tons and averaging 4,658 tons, and four sail vessels that carried 5,000 tons and upwards, aggregating 21,270 tons and averaging 5,318 tons.

The greatest number of miles run during the season is to the credit of the propeller Kearsarge of the Interlake Transportation Co., of Cleveland, Ohio, and amounted to 47,709 miles.

The greatest amount of freight carried by a single vessel during the season is to the credit of the propeller Victory of the same company and aggregated 96,877 net tons.

The greatest number of miles-tons for the season is to the credit of the propeller Centurion, of the Hopkins Steamship Line, of St. Clair, Mich., and amounted to 80,559,417. The largest single cargo carried by a propeller during the season is to the credit of the propeller Queen City of the Zenith Transportation Co., of Duluth, Minn., and amounted to 5,376 net tons.

The largest single cargo carried by a sail vessel during the season is to the credit of the tow barge Aurania, of the Corrigan Steamship Co., of Cleveland, Ohio, and amounted to 5,850 net tons.

The United States Canal was open to navigation during the season of 1896, 232 days, and the Canadian Canal, 218 days. The amount of freight carried to and from Lake Superior during the season of 1896 amounted to 16,239,061 net tons, which is an increase of 1,176,481 net tons or 7 8-10 per cent in comparison with season of 1895.

It is found by the discussion of the reports of the watchmen stationed at the head and foot of the canal that vessels were delayed at the canal during the season 28,828 hours, or an average of 1 hour and 33 minutes.

It appears from the records the railroad swing bridge across the canal did not delay navigation in a single instance during the entire season, nor was the passage of trains delayed by boats.

A BOAT 4,500 YEARS OLD.

A Viking craft found in Norway some time ago was in use about the year 1000 A. D., and at once became famous as by far the oldest specimen of water-craft in existence. The boats in the Gizeh Museum, it was decided by the learned, were used at least 4500 years ago, and were contemporaneous with the Dashur pyramids of the eleventh Egyptian dynasty.

With this boat and the two which remain in the Cairo museum were two more, which still rest in the sands which stretch desolately from the Dashur Pyramids, near which they were found.

The five boats were found buried at a considerable depth not far from the famous largest pyramid, and in such orderly form and with such mathematical relationship to the great pile of stone that it was evident that they had been buried with design at that particular spot.

The boats were found to be alike in the material of which they were constructed and in their general dimensions. The cedar of antiquity, which entered into so much of the construction of things of wood, was used in building these boats. While the equipments of the boats had generally disappeared with time, their shapely outlines still remained.

The boat that is in Chicago now was probably better preserved than any. It is thirty feet long, eight feet of beam, and four feet of hold. A well-preserved and peculiarly marked and designed piece of rudder of wood was found near the boats.—Harper's Round Table.

E. Platt Stratton, chief engineer surveyor to the Record of American and Foreign Shipping, New York, is authority for the statement that a steel schooner will carry 27 per cent more cargo than a wooden vessel of the same displacement.

NEWS AROUND THE LAKES.

CHICAGO.

Special Correspondence to The Marine Record.

Capt. M. W. Humphrey, of Detroit, was in this city on Tuesday.

Grain freights are steady at 1⅛ cents on corn and 1 cents on oats to Buffalo.

The tug Protection had her stem badly damaged by collision with the steamer Italia on Sunday.

James A. Calbick & Co., vessel and insurance agents, have removed into their new offices at 12 Sherman street, room 1.

The schooner yacht Toxteth is in the Independent Tug Line's floating dry dock receiving some calking and a new piece of keel.

The Anchor Line steamer Clarion arrived back here early Monday, she having been compelled to run before the fierce gale after getting within 25 miles of the Manitou Islands.

The Canadian Pacific road announces the opening of its steamship lines for the season. The first boat left Owen Sound on May 1. The Fort William line began on May 4. The Alberta will start for Detroit and Windsor on June 6.

The schooner Lookout, from Chicago to Green Bay, was driven ashore during the gale last Thursday, four miles north of Two Rivers, Wis. Capt. Oleson and his crew were rescued by the Two Rivers life saving crew. The schooner will become a total loss. She was built in 1855 at Buffalo, N. Y.

Chief Swenie, of the Chicago fire department, will advertise for bids for constructing the new $50,000 fireboat in July, which the council provided for in the appropriation bill for the current year. The boat will be the largest and best equipped of its kind in the country and will be ready for service October 1.

H. W. Cook & Co. chartered the schooner Thos. Howland for clipped oats to Sarnia at 1 cent and hemlock ties, Alpena to Chicago, at 7 cents, the steamer L. S. Porter and consorts Brainard, Cahoon and Maxwell for lumber, Grand Marie to Chicago, at $1.37½ per M. feet, steamer M. C. Neff and schooner Fitzhugh, dressed lumber, Manistee to Cleveland, at $1.50 per M. feet.

It will of interest in vessel circles to learn that W. S. Canright, who is at present with the Great Lakes Line, managed by John Gordon, Buffalo, has accepted the responsible position of purchasing agent of the Goodrich Transportation Co. A week ago last Sunday, Mr. Canright received a dispatch from Chicago, offering him the position of purchasing agent of the well known passenger line of steamers on Lake Michigan. He accepted it and will leave Buffalo about the middle of May to perform the extensive business required by that line. Mr. Canright had been connected with the Goodrich Line, except for a few years, from boyhood up, and his qualities as a purchasing agent are generally known.

The three tugs built by James Davidson at West Bay City, Mich., for the Barry Towing & Wrecking Co., of Duluth, are named the Prodigy, Industry and G. A. Tomlinson. The latter was named after the popular vessel agent, G. Ash Tomlinson, of Duluth. The Barry Towing & Wrecking Co. expect to shortly add three more tugs to their fleet, which will give them the most powerful line of tugs at the head of the lakes. Their Duluth office is situated at the foot of 5th avenue west. The company is conducted by the Barry Brothers, the well-known owners and operators of the Independent Tug Line of Chicago. Miles Barry is the president and manager and Peter Barry secretary and treasurer of the Duluth company.

CLEVELAND.

Special Correspondence to The Marine Record.

A stranger climbed aboard of the steamer Olympia as she lay at the dock on Monday night, and by some means fell in the hold and was killed.

Capt. John Mitchell is of the opinion that there will be an improvement in business circles, freights and charters before the close of the month.

The Globe Iron Works Co. will launch the steel schooner Antrim, built for the American Transportation Co., on Saturday next, at 11 o'clock, standard time.

Captain Thomas Wilson has sold two-thirds of the tug Oscar Steadman to Valentine Fries, of Milan, and Joseph Dewhirst, of Huron, and the vessel has been transferred to the Sandusky district.

The reductions in freight rates have taken place, notwithstanding an increase in ore shipments from less than 2,000,000 tons in 1880 to 10,500,000 tons in 1895 and a little less than 10,000,000 tons in 1896.

The steamer Norseman is in the Cleveland Dry Dock for re-calking, some new bottom planks, new rudder, and repairs to stern bearings. The Progress is booked to go into dock after the Norseman comes out.

The large steel steamer Coralia is in the Ship Owners' Dry Dock for bottom repairs. Several plates will be taken off and re-rolled or renewed, as survey determines. It is expected that she will be out of dock by Saturday night.

It has been decided that the yacht squadron will start from the club house on Monday morning, May 31, and after a sail to some point, yet to be decided upon, return to the club house in time for lunch. Music will be rendered at the club house during the day and evening. The regatta committee will meet later and decide where the fleet shall sail to. The Priscilla, Neva, Commodore Gardner, Shamrock, Corsair, Mona, Alert, and others of the fleet are expected to take part, as well as several naphtha and gasoline launches which have been recently added to the membership of the club.

Tonnage is not being sent out with the customary dispatch and a large number of boats will remain in ordinary. The Illinois Steel Co. and Minnesota Iron Co. contract affords business for a good part of the fleet managed by Pickands, Mather & Co. Fifty cents is offered for "wild" Marquette tonnage.

Capt. Orville Green cleared the steamer Griffin at the custom house this week. There is no master thinks more of his command than Capt. Green does of the Griffin. He has sailed her since she was built and he knows that he has got a good vessel under his feet. He takes care of her, too.

There is talk of a general meeting of vessel owners with a view to laying up all tramp or wild steamers for thirty days. Such a move, it is thought, would have a beneficial effect on the freight market. Several of the largest lines, including those of M. A. Bradley, J. C. Gilchrist and Mitchell Bros., are holding their tonnage in port and not competing for the miserable rates of freight now offered.

The Mutual Line steamer Cambria reached Ashtabula on Monday night with the first ore cargo to arrive there this season. The first arrival at that port last year was on April 20th, and by May 1, 20,000 tons had been carried there. However, it was May 5 before the John W. Moore got in to Ashtabula with the first cargo of the season in 1892.

A number of vesselmen inspected the standard automatic releasing hook to be attached to the lower blocks of davit tackle falls, and on exhibition here in model form a few days ago. The local steamboat inspector of hulls, Capt. DeWolf, Mr. B. L. Pennington, Mr. Fraser, shore engineer of the Bessemer Line, and a number of other gentlemen, pronounced the device perfect. Capt. Raymond, of 22-24 State street, New York, is making a tour of the lakes in the interests of the company manufacturing the patent.

Although there is but little doing in the freight market the latest built tonnage are making records in carrying bulk cargoes. The new steamer James Watt, leaving here on her maiden trip Wednesday, loaded 5,500 net tons of coal and 270 tons of fuel on a mean depth of 15 feet 4½ inches, and this cargo was taken aboard at the new Cuddy-Mullen lake front slip in ten and a half hours. Carrying such a load on what is considered on the coast ballast trim shows the form of the new lake-built hulls. The time of loading and trimming cargo and fuel is not to be sneezed at either.

DETROIT.

Special Correspondence to The Marine Record.

Several of the Parker & Millen fleet are laying to an anchor below Belle Isle bridge on waiting orders.

The railroad car ferry Landsdowne is running with only one wheel since her collision with the car ferry Michigan.

The Grummond Line steamer Flora is being fitted out to go on the route between Cleveland and Port Stanley. She will start about the 19th.

The Horn Bros.' new tug will be all ready for work by the 12th. She is a fine looking boat, powerful, and quite an addition to the local fleet.

The two gas buoys for the Middle Ground and Southeast Shoal at Pt. Pelee are now at Amherstburg. It is hoped that they may soon be placed in position.

The Canadian steamer Rosedale, which was ashore in the St. Lawrence, went into the dry dock here on Monday for eight plates and several frames. She will also be given a new propeller. Repairs will occupy about a week's time.

BUFFALO.

Special Correspondence to The Marine Record.

There is little or nothing doing in chartering here this week, although there are quite a number of arrivals and receipts of grain have been quite heavy, but it is thought that the rush is now about over, and until there is a brisk movement in iron ore and coal, vessels will continue paying off their crews and keeping down expenses. The line boats manage to keep moving, at least those that were fitted out, but the several wooden boats of the Lehigh Valley Line have not yet made a move nor are they likely to while cargoes are so scarce. Coal charters only show 20 cents to the head of the lakes and 25 cents to Lake Michigan, nearly eleven thousand tons being shipped on Wednesday.

FLOTSAM, JETSAM AND LAGAN.

Vessels of the Rockefeller fleet will not discharge or load cargo on Sunday, either at their own or any other dock.

The composite steamer Lewiston, which had 48 feet 2 inches added to her length at South Chicago, is ready for service.

The new lighthouse on the south point of Put-in-Bay is nearing completion, and it is expected that the light will be in operation in a few weeks. The lamp formerly in use in the lighthouse at Gibraltar, Detroit river, will be exhibited in this new lighthouse.

The cost of fitting the steel steamers Ira H. Owen and Parks Foster with gangways and hoisting apparatus at Cleveland was about $5,000 each.

The Anchor line steamers will run to Gladstone this season. These boats, several years ago, touched at Gladstone for cargo, but finally abandoned that port.

The tug Fritz Karste will be sold by the United States marshal at Two Rivers at 12 noon on May 11, to satisfy a claim for wages made by Charles H. Berger.

From a record kept since 1864 the first arrivals at Marquette date from April 7 in 1884 to May 21 in 1893. First arrivals during other seasons are between these dates.

The work of dredging Ashland harbor under the $15,000 government appropriation began last week. The dredge will work several days at Ashburn, and the balance of the season on the Ashland side of the bay.

The Central Freight Association has adopted a resolution to withdraw all dividends and percentages from the Detroit and Cleveland Steam Navigation Company, both freight and passenger, if it does not make up on rates with the Grummonds before May 1.

Now that the steamers St. Paul and Minneapolis have been launched, the Chicago Shipbuilding Co. has only one more vessel to complete, the barge Amazon for James Corrigan, of Cleveland. She is only partly in frame, but will be completed by July 1.

It is announced that the old revenue steamer Andrew Johnson will become a training ship for the Cleveland naval reserve. The steamer will be auctioned off to the highest bidder within a few days at the Globe shipyards. Vesselmen say that the boat will not bring $2,000.

The Lake Michigan cargo record last fall was 6,210 net tons, while the largest load brought down from Lake Superior was 5,699 net tons. The season of 1897 will undoubtedly see many cargo records broken. Deeper water and the vessels which were produced last year and this year augment the possibility of surprisingly large cargoes.

It is reported that the steamer Dean Richmond, which was sunk near Dunkirk in 1893, and of which no trace has ever been found, had been located by Capt. Sweet of the tug Ruby in about ninety feet of water. The report could not be verified as it is said that Capt. Sweet wishes to keep the story quiet in order to make arrangements concerning salvage.

The Rockefeller steel tow barge W. Le Barron Jenny was launched last week at West Bay City. She is 380 feet long over all, 366 feet between perpendiculars, 44 feet beam molded and 26 feet depth, with a carrying capacity of 3,950 gross tons on a draught of 14 feet 6 inches. The double bottom is 4 feet 6 inches deep. Collision bulkheads forward and aft extend up to the spar deck, and the hold is divided into three compartments by two bulkheads.

It is said that railroads connecting Lake Erie ore receiving ports and the Mahoning and Shenango valleys are inclined to grant the request for reduced rates which has been made the past week. It has not yet been determined what the reduction will be, but the furnace operators have asked for a tariff which will remove some of the disadvantages under which they would otherwise labor in competition with Carnegie. Roads carrying ore from ore ranges to the docks have reduced rates and the vessel owners have also been forced to accept lower freights. It is claimed also that the ore carrying roads in Ohio and Pennsylvania must contribute to the reduced cost of iron and steel products.

Capt. Charles Ainsworth, of the steamer City of Venice, has started out well. He is in his first boat as master this year, and on his first trip pulled the steamer Eber Ward out of a bad place. The steamer City of Venice found the Ward hard on at Keweenaw Point. Fortunately she struck a sand beach. The report was sent out that she released herself, but this was not true. The City of Venice had all she wanted to do to release the Ward. The City of Venice pulled five times on the Eber Ward before she slid off into deep water. Three tow lines were parted in the operation. The Eber Ward went on the beach at a twelve-mile-an-hour clip, but does not appear to be damaged.

FROM PORT TO PORT.

Two large sailing vessels have just arrived at Liverpool after voyages of a remarkable character. The vessels sighted each other in the South Pacific on the 8th December, and from that date until April 1st, when both docked at Liverpool, their progress may be described as literally neck and neck. The following is the report supplied by Captain Curd, master of one of the ships, the "Narcissus," owned by Mr. C. S. Caird, of Greenock:—On the 6th December in about 2° S. of the Line, in the Pacific, fell in with the ship "Eudora," and on the Saturday in each successive week she was in company till we got down to Cape Horn, when we parted company, the "Eudora" being rather the better of the two during the heavy weather. Neither saw one another till their arrival in Falmouth, where the "Narcissus" arrived about twelve hours before the "Eudora." The "Narissus" left Falmouth two hours before the "Eudora," both bound to Liverpool; saw each off the Longships, and then had a very thick fog all the way up the channel. Off the Skerries the fog lifted, and then the "Eudora" was sighted. The "Narcissus" arrived in Liverpool two hours before the "Eudora," both docking in the East Waterloo Dock by the same tide. The "Eudora," commanded by Captain Ogilvie, is owned in Dundee.

TREASURY DECISIONS RELATING TO VESSELS.

(17783.)

Relating to mates' licenses, western river steamboats.

Treasury Department, February 11, 1897.

Sir: Your letter of the 18th ultimo, requesting to be informed whether, in view of the Department's decision that mates on river steamers are not required, under the steamboat laws, to take out licenses, such mates who have heretofore taken out licenses and paid therefor have a claim against the government for a refund of such fees, was duly referred to the Solicitor of the Treasury for his opinion. That officer, in an opinion rendered the 9th instant, decided "that mates on river steamers having voluntarily applied for license, and having had the benefit of the use of the same for the time for which they were issued, have no claim to be reimbursed for such expenditure. I think the principle stated in Elliott vs. Swartwout (10 Pet., 137), that in case of voluntary payment by mere mistakes of law, no action will lie to recover back the money, will apply to protect the government in a case like the one presented."

This opinion is concurred in by this Department, and your attention is called, in connection therewith, to the fact that no fees for mates' licenses have been paid to the government since June 19, 1886.

Very respectfully, S. WIKE,
Acting Secretary.

H. F. BURNSIDE, Esq.,
Steamer E. A. Andrews, Point Pleasant, W. Va.

(17794.)

Ferryboats exempt from laws restricting number of passengers carried.

Treasury Department, February 18, 1897.

Sir: This Department is in receipt of your letter of the 15th instant, in which you complain of the overcrowding of the ferryboats of the Staten Island Rapid Transit Co., particularly of the steamers Westfield, Northfield, and Middletown, and that the life-saving appliances on those ferryboats will not suffice for one-half the number of persons they often carry. You also complain of the refusal of Mr. T. H. Barrett, local inspector at New York, to give you certain information in regard to the ferry steamers referred to, he claiming in such refusal to be acting under the regulations of the Department in so refusing.

In conclusion, you ask to have mailed to you an order on the United States local inspectors at New York to furnish you such information as may be desired, that is of record, as refers to the steamers named in your letter.

In reply, you are informed, first, that the United States inspection laws, section 4464, Revised Statutes of the United States, specially exempt ferryboats from the restrictions imposed on other steam vessels in the matter of limitations of passengers, therefore rendering officers of the inspection service powerless to remedy the evil of overcrowding the passengers on ferryboats.

The life-saving equipments for such steamers are regulated by a rule of the Board of Supervising Inspectors, under the provisions of section 4426, Revised Statutes; said rule, section 3, Rule VII, reading as follows:

"All ferryboats carrying passengers shall be equipped as passenger steamers to such an extent as in the opinion of the inspectors shall, in each case, be deemed just and proper, in accordance with the average number of passengers carried per trip."

It is assumed by the Department that the equipments you complain of are provided in accordance with this rule, and that the kind and number thereof are fully set forth in the certificate of inspection of the steamers, two copies of which are required to be framed under glass, on such steamer, for the information of passengers.

If there are less equipments on board the steamers than the number called for in the certificates of the steamers, such steamers are liable to the penalty of $500, provided for in section 4499 and 4500, Revised Statutes. Any complaints in that respect should be made to the collector of customs at New York, whose duty it would be to enforce such penalty.

As the certificates of inspection on board the steamer, which are accessible to all passengers, embody all the record information concerning the equipment of such steamers, the Department must respectfully decline to furnish you the letter to the inspectors authorizing you to examine the office records.

In conclusion, you are informed that this Department recognizes the abuses that have grown up because of the lack of law to restrict the number of passengers on ferryboats. The Supervising Inspector-General, in his annual report to the Secretary of the Treasury, in 1888, recommended legislation on the subject, which report was transmitted to Congress with the approval of this Department; which recommendations would, if they had been approved by Congress, have mitigated, if not entirely removed, all just cause of complaint.

Respectfully yours, W. E. CURTIS,
Acting Secretary.

DAN. S. ROBERTSON, Esq.,
P. O. Box, 1135, New York, N. Y.

NOTICE TO MARINERS.

Col. Lydecker, Corps of Engineers, U. S. A., states that vessels bound up and down hug the Canadian side of the deep channel out of the foot of Lake Huron too closely. There is no necessity for this. The channel is 2,400 feet wide its entire length, and the colonel says that all loose boulders in it have been located and raised, and that its entire completion may be announced.

Colonel Lydecker talks of conferring with the Lake Carriers' executive committee and the Canadian government to see if some arrangement cannot be made by which lights may be placed on the shore off Point Edward.

Now that the channel is completed it is in order for the lighthouse board and the hydrographic office to give notification of the fact and announce bearings and distances for using it. All this uncertainty comes of the premature use of the channel, which was desired by all owners, as too many rocks and shoals had been encountered in the other. That the masters hug the east side too closely would be, it would seem, entirely their own fault.

Treasury Department,
Office of the Light-House Board,
Washingon, D. C., May 1, 1897.

MILWAUKEE LIGHT STATION.

Notice is hereby given that, on or about May 12, 1897, the light at this station, near the extreme north point of Milwaukee Bay, will be changed from fixed white varied by a white flash every 45 seconds, to fixed white varied by a white flash every 30 seconds.

No other change will be made.

By order of the Light-House Board.

W. S. SCHLEY,
Captain, U. S. Navy, Chairman.

MARITIME LAW.

WELLMAN et al. vs. MORSE et al.

(Circuit Court of Appeals, First Circuit. Sept. 15, 1896.)
No. 151.

1. General Average—Personal Liability.

The owners of a cargo are liable on an implied promise for general average.

2. Same.

Where a master, in order to preserve his cargo, takes measures such as a wise and prudent man would think most conducive to the benefit of all concerned, he has a lien on the cargo for the expenses so incurred.

3. Same—Lien.

The lien for general average is one recognized by the admiralty law, and stands on the same footing as a maritime lien on cargo for the price of its transportation.

4. Same.

The lien may be preserved by a qualified or conditional discharge of the cargo.

5. Same.

Though. strictly, the right to payment of general average does not, perhaps, always await a discharge of the cargo, yet no admiralty court will enforce payment prior to an opportunity for an inspection of the cargo by its owner for the purpose of determining its contributory value, so that, practically, a prior discharge of the cargo is necessary to enable the owner of the vessel to collect the amount due for general average.

6. Same.

The owner of a vessel cannot ordinarily retain the cargo aboard for non-payment of freight, and thereupon charge demurrage arising from such detention.

7. Same—Bond.

An average bond should be conditioned in the simplest terms to pay the obligor's share of general average, and it is improper to demand a bond requiring more than this, or which would in any way prejudice the owner of the cargo in denying liability, or in questioning the amount of it, or which would close any of the methods which the law gives for determining the existence or extent of liability.

8. Same.

The cargo owner cannot insist that the bond shall provide for a postponement of any suit against the sureties until the end of litigation with the consignees.

Appeal from the District Court of the United States for the District of Massachusetts.

Before Colt and Putnan, Circuit Judges, and Webb, District Judge.

PINTSCH GAS BUOYS.

The Pintsch gas buoys used in the St. Lawrence River last year have given such excellent satisfaction that an additional appropriation has been secured from congress for several more buoys to be placed the coming season. Canadian papers are strongly advocating an appropriation for the purchase of the buoys for Canadian waters. The Pintsch buoy is a compact wrought iron vessel filled with compressed Pintsch gas, and carrying at its top a patent storm-proof lantern supported by a strong iron framework. The flow of gas from the reservoir into the lantern is controlled by the Pintsch regulator, by means of which a clear light is maintained, no matter what may be the position of the buoy or how much it may toss in heavy seas. The storm-proof lantern is so constructed that while the necessary air is admitted to feed the flame, not a particle of water can enter. The buoys are of various sizes and burn continuously and reliably night and day for from three months to one year, depending on their size. The refilling of a buoy is done from a tender by passing compressed Pintsch gas through a flexible tube into the buoy. This gas is the same as is now used in railroad arc lighting.

HOLLAND SUBMARINE TORPEDO BOAT.

The Holland submarine boat is rapidly nearing completion in the Crescent ship yards at Elizabethport, N. J. The construction was begun about six months ago, but the difficulties attending a new venture of such magnitude have greatly delayed it.

Mr. Holland, the inventor, has been in constant attendance at the ship yards since the work was started. The curious looking craft is 50 feet long and 10 feet 3 inches in diameter at the center, shaped like a cigar, sharp at both ends. She has three tubes for throwing torpedoes under water. The motive power under water will be electricity, furnished by a storage dynamo, and on the surface an oil engine will be the means of propulsion. Speed under water will be eight knots an hour and on the surface ten knots.

During this week the boat will be placed in the water and there finished. She is constructed of the finest steel plate, capable of sustaining an immense pressure, so that a descent can be made to almost any depth. The supply of air will be two-fold—a storage of compressed air emitted, gradually during a descent, and a supply produced by chemical action.

NOTES.

The two gas buoys to be placed by the Dominion Light-House Board in Point Pelee passage are to be supplied with gas by the United States Light-House tender patroling the district.

Mr. Chas. W. Whitney, agent for Purves' ribbed steel boiler furnace flues and Serve ribbed tubes has removed his offices from the Manhattan Life building to Bowling Green building, 5 to 11 Broadway, New York.

The hydrographic office announces the publication of a book, No. 112, entitled "Illustrative Cloud Forms for the Guidance of Observers in the Classification of Clouds." This book contains sixteen plates showing the different cloud forms, with descriptive matter; also a chart, No. 1600, entitled "Classification of Clouds for the Weather Observers of the Hydrographic Office." This chart contains twelve of the sixteen plates shown in the book; there is no descriptive matter on the charts, but the types of clouds are stated. The hydrographer has been engaged in the preparation of this series of cloud pictures during the past three years. The nomenclature of the cloud committee of the international marine conference has been adopted, but the plates are lithographed from original paintings made for the hydrographic office by Rudolf Cronau. In every stage of the work—artistic, technical and scientific—experts have criticised his progress. The plates, therefore, may be confidently accepted as representing accurately the new description given in the book publication, No. 112. These publications may be obtained from the sales agents of the hydrographic office.

Col. Lydecker, who succeeded Gen. Poe in charge of the work, at St. Mary's Falls Canal, says that while the machinery for the new lock has given some slight trouble, the newspaper reports have been greatly exaggerated. The machinery was designed by a competent mechanical engineer as peculiarly fitted to work the gates. It is of the most complicated description. Naturally the force that works it needs education on that score alone, as it is totally unlike anything ever before used. Besides this it is new, and like all machinery that has been little used, is subject to disarrangement. Nevertheless the force has done well with it and the delays have been caused by the breaking of only minor parts not exactly adapted for their work. The delays, however, have been very short each time, as the parts to replace them were right at hand. Col. Lydecker says that the machinery has not been given a fair trial, and that if, after a long trial, it is proved to be inadequate for the demand upon it, he will have it replaced. But he is entirely confident that it will ultimately give every satisfaction.

If we can credit the European dispatches in the daily press, there is a possibility of the steam turbine for marine purposes being given a trial on a large scale. Those dispatches state that it has been freely rumored at Newcastle-on-Tyne that the Cunard company's engineers are thinking of trying the new marine turbine system on their next steamer. The system was referred to in these columns. Further trials have recently taken place with the little steamer Turbinia, with the result that she showed a mean speed on a measured mile, at the mouth of the Tyne, of 32¾ knots an hour, with remarkably low coal consumption. The experts have reported that, although heavy seas were encountered, "there was no racing of screws and the machinery worked with perfect smoothness and complete absence of vibration." The Turbinia is only 100 feet long and 9 feet beam, with a maximum displacement of 42 tons.

Cassier's Magazine of Illustrated Engravings has in its May number the following articles: "Electric Power from High Water Heads," by John E. Bennett; "The McKenna Process for Renewing Steel Rails," by Robert W. Hunt; "British Express Locomotives with Single Driving Wheels," by George Frederick Bird; "Anhydrous Ammonia for Ice Machines," illustrated, by Henry Faurot; "Andrew Carnegie," a biographical sketch, with a portrait, and several other illustrations, by John D. Champlin; "Roller Bearings for Machinery," by H. A. Richmond. Among "Current Topics" are: "'Central' Condensers," "Engineering in Warfare," "Machinery in Big Buildings," "European and American River Boat Methods," "Line Shafting," "Producer Gas for Boiler Firing," and "The Storage of Natural Forces."

CLEVELAND HARBOR.

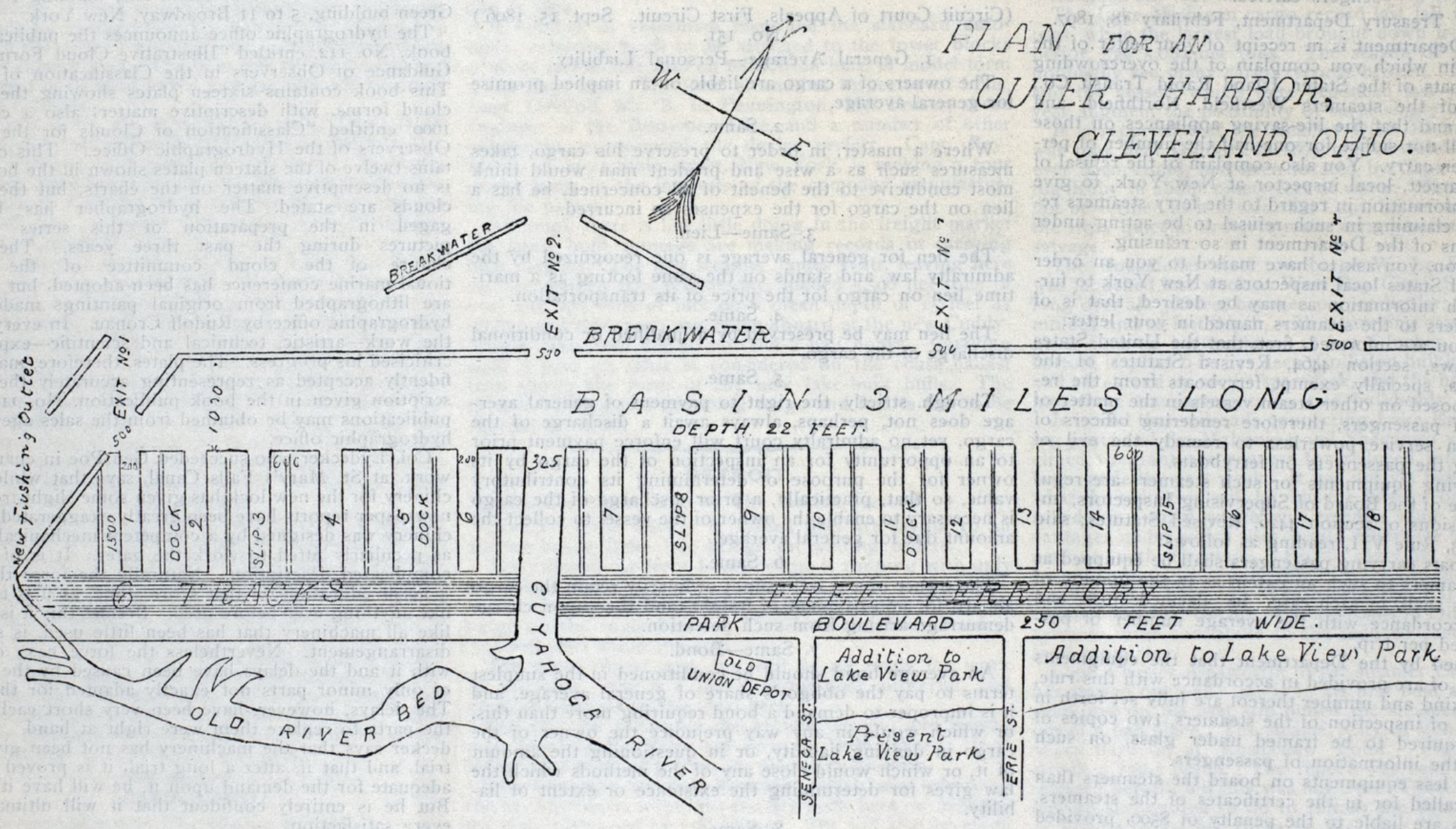
While it is well to have the inner harbor improved, widened, dredged, etc., it will still remain a crooked, narrow creek and, obstructed as it is with a total of twenty-six bridges, it is certain that it will not meet the growing demands of commerce within the next few years, in fact, the pressure is being already felt, although considerable improvements were made last year and at the present time a contract has been let for removing old docks and dredging between Main and Superior street viaduct, making the channel 86 feet wider for a distance of 400 feet and an average of 60 feet wider for a distance of 480 feet. This will give an average width of channel of 275 feet, in comparison with 180 feet in the narrowest place at present. The cost of this work is estimated at $15,000. The contract has also been let for building new docks between Main street bridge and the viaduct, a distance of 880 feet at a cost of $15,500. The dock line was also recently established and arrangements made to widen the river an average of 40 feet for 800 feet west of the upper Seneca street bridge. Work on these improvements will be pushed as rapidly as possible during the next few months. Plans have also been made for widening the upper portion of the river and will be advanced during the year.

The Lake Shore & Michigan Southern Railway Co. has commenced work on opening the old river bed, making an opening 100 feet wide into Lake Erie, giving a 60-foot waterway and a 40-foot street, the latter to be properly docked. The company is also constructing a winding place for vessels 350 feet long and 150 feet wide, to be docked and dredged. Land is also furnished by the company to the city enabling improvements to be made at the mouth of the river, making it twice as wide as at present. All of these improvements are being made by the railroad company at no expense to the city in consideration of a modification of the contract entered into years ago, by which modification the company is permitted to build a steel bridge at the head of the old river bed and perpetually maintain it instead of building a swing bridge as originally provided by said contract.

These improvements for the river are in every way commendable, but there are those who believe that with the protection of a breakwater such as Cleveland now has, the lake front should be utilized according to the plan in our illustration, reproduced from a pamphlet on this subject by C. E. Bolton, M. A., entitled "A few civic problems of Greater Cleveland." By moving out the harbor line as in the plan, an average depth of twenty-two feet could be maintained as opposed to the present depth of about fifteen feet in most parts of the river.

There is or can be no adequate idea of the expansion of trade and lake commerce within the next decade, and it is not a whit too early to begin improvements looking towards permanent facilities for the handling of a large lake commerce. The lake shipments of ore amounted to less than a million tons twenty years ago or in 1876, in 1895 there was shipped from the mines bordering on Lake Superior 10,429,037 gross tons, and who is to say that this past increase of over 1,000 per cent will not be more than duplicated in the next similar period, especially when so significant a fact can be recorded as the Oliver mine, a Carnegie property, on the Mesabi range mining 10,750 tons of ore in one day and during July last mining and shipping 180,000 tons, with such vast strides being made in the ore trade there is also an immense increase in coal, lumber and cereals not to mention manufactured products.

The Federal government has protected the required territory, by constructing and keeping in repair a good breakwater, it is now the province of the municipality to take advantage of this liberal outlay and build such wharves, docks and piers along the lake front as will make Cleveland one of the cheapest, deepest and most convenient ports on the lakes, and, being entitled to such



PROPOSED IMPROVEMENT AT CLEVELAND HARBOR.

a reputation will do much towards making it the leading shipping port. It should be borne in mind, however, that this problem is a purely local one and that no financial or other aid can be expected from the general government in further developing harbor facilities.

OFFICIAL TRIAL OF THE U. S. S. ANNAPOLIS.

The trial of the Annapolis, the first finished of the six composite gunboats ordered by the government in the early part of 1896, took place on Long Island Sound, April 22, last.

The Annapolis was constructed at the Crescent shipyard, Lewis Nixon, manager, Elizabethport, N. J., and although her contract was the last given out she was the first boat finished. This vessel is 204 feet long, 36 feet wide, 22 feet 3 1-2 inches deep, and of 1,000 tons displacement on a draught of 12 feet. This is the first vessel of large type in the United States Navy, to be equipped with all water tube boilers, the Bureau of Steam Engineering heretofore preferring the use of water tube boilers in connection with those of the Scotch or tank type. After repeated investigations and at the request of the constructors, Babcock & Wilcox all forged steel boilers were adopted for both the Annapolis and Marietta.

This type of boiler is now so well known that it will be unnecessary to enter into its description other than to say that all the tubes are straight and placed on an angle of 13 degrees with the horizontal, the tubes are expanded at their ends into forged steel headers, which are provided with openings opposite the end of each tube through which a thorough examination of the tubes can be made and the tubes cleaned and renewed. By means of a steam jet inserted between the headers all soot deposits can be removed from the exterior of the tubes. Surmounting the sections of tubes is a steam and water drum 42 inch diameter and 10 feet long; all openings leading into and out of drum are 4 inch in diameter, insuring an absolutely free circulation of steam and water and a steady water line. Steam to 200 pounds pressure can be raised from cold water in half an hour, this being a most important feature in boilers for a warship. The steam supplied to the engines was absolutely dry, not a drop of water being found in the separator at the end of trial.

The Babcock & Wilcox boilers in the Annapolis are built for a working pressure of 250 pounds to the square inch, there being two in number supplying steam to a triple expansion engine having cylinders 15 inch, 24 1-2 inch and 40 by 28 inch stroke. The specifications for the boilers called for a total of 3,600 square feet of heating surface and 94 square feet of grate, giving a ratio of 38 to 1, the contract speed to be 12 knots and indicated horse power 800. From the performance of the boilers on the builder's trial it was shown over 900 I. H. P. could be developed under natural draft, although the funnel is very short. On the official trial forced draft in the ash pit was used, each boiler being supplied by air from independent Sturtevant fans, the average air pressure in the ash pit being limited to one inch of water.

The maximum indicated horse power developed by the main engine was 1400, the average being 1320, at 147 revolutions per minute. The collective indicated horse power will average about 1360. The maximum speed was 14.2 knots and the minimum 12.7. This low figure occurred through the pilot losing sight of the Leyden's cutter on the first six mile leg of the return course.

John Patterson, Cramp's veteran engineer, was aboard as a guest. He declined to be a guest and turned up in the engine room in overalls before the trial was fairly started. His great ambition was to get up fire enough to burn the paint off the smoke stack. The new water-tube boilers foiled him. The combustion in them was so complete that the smoke stack refused to become hot, whereat Patterson, who had seen thirteen trial trips, beginning with the Vesuvius in 1889, marveled, but was satisfied.

When the end of the "four hours at full speed" test was reached the helm was put hard to port and to starboard without reducing speed, and the little vessel made circles with a diameter of 400 feet. In turning she heeled only 3.5 degrees.

Before leaving the Annapolis, Commodore Dewey said that he was going to send this telegram to the Secretary of the Navy: "Annapolis trial most satisfactory. Speed 13.43 knots."

"It is not customary and hardly proper," said the Commodore, "to use adjectives in such dispatches; but really this time it cannot be helped. She deserved them."

LIGHTS AND FOG-SIGNALS.

The Canadian Department of Marine and Fisheries print the following cautionary notices:

The intrinsic power of a light should always be considered when expecting to make it in thick weather. A weak light is easily obscured by haze, and no dependence can be placed on its being seen.

Colored lights are also inferior in power to bright or white lights, and are more quickly lost under unfavorable circumstances.

In some conditions of the atmosphere, white lights may have a reddish hue. The mariner should not trust solely to color where there are sectors, but verify the position by taking a bearing of the light. In either side of the line of demarcation, between white and red, and also between white and green, there is always a small arc of uncertain color.

With Respect to Fog-Signals.—Having in view the varying distances at which a fog-signal can be heard at sea, and the frequent occurrence of fog near to, but not observable from, a fog-signal station—

Mariners are cautioned that, whilst they are entitled to assume that every endeavor will be made to start fog-signals as soon as possible after signs of fog have been observed, they should not, when approaching the land in a fog, rely implicitly upon these fog-signals, but should always use the lead, which, in nearly all cases, will give sufficient warning.

Mariners are strongly cautioned that they must not judge their distance from a fog-signal by the power of the sound. Under certain conditions of the atmosphere the sound may be lost at a very short distance from the station, and these conditions may vary at the same station within very short intervals of time.

The expression "foggy weather" means that the state of the atmosphere is such as to make objects indistinct.

The following abbreviations are used in describing lights:

F. Fixed. A continuous steady light. In catoptric lights the intensity may vary, depending on the position of the mariner with reference to the axis of the reflectors.

Fl. Flashing. Showing single flashes.

Gp. Fl. Group Flashing. Showing groups of two or more flashes in succession (not necessarily of the same color) separated by eclipses, followed by a longer eclipse.

F. & L. Fixed and Flashing. Fixed light, varied by single white or colored flashes, which may be preceded and followed by short eclipses.

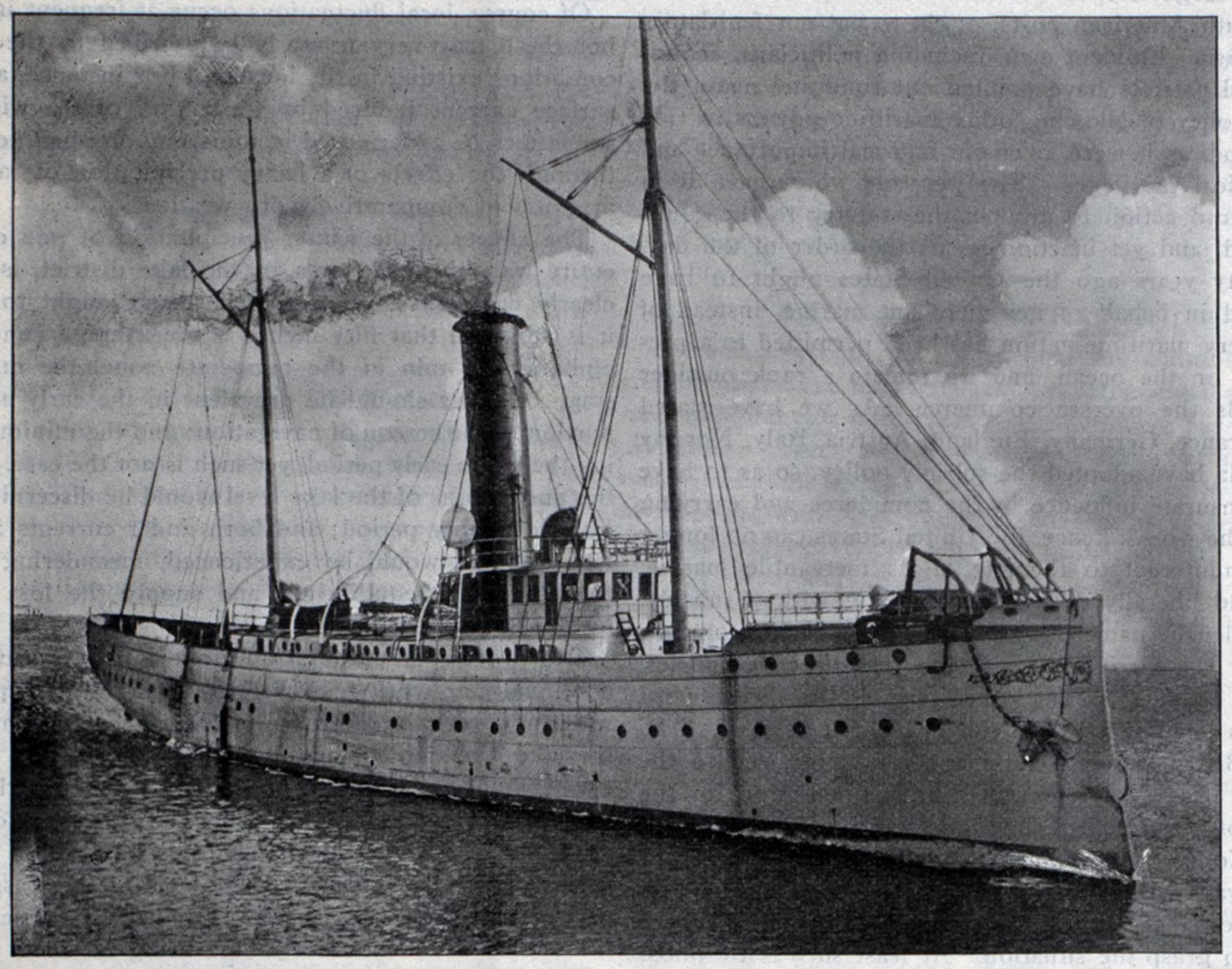
Rev. Revolving. Light gradually increasing to full effect, then decreasing to eclipse. (At short distance and in clear weather a faint continuous light may be observed. As lights of this class are all catoptric they are liable to variations in intensity during the continuance of the flash as the position of the reflectors changes.)

Gp. Rev. Group Revolving. Showing groups of two or more flashes in succession produced by revolving catoptric apparatus, separated by eclipse, followed by a longer eclipse.

Occ. Occulting. A steady light suddenly and totally eclipsed.

Alt. Alternating. Red and white light alternately at equal intervals.

The time given for a revolving or flash light is from the beginning of one flash to the beginning of the next.



U. S. REVENUE CUTTER GRESHAM.

Built by the Globe Iron Works Company, Cleveland, O. for service on the Great Lakes. Length over all, 205 feet 6 inches; beam, 32 feet; depth, 17 feet; speed, 22 miles per hour.—From Beeson's 1897 Marine Directory.

The Canadian steamer Bayfields arrived at Rondeau, Saturday morning, to commence the work of survey which was suspended for the winter last fall. This is the first survey that the Canadian government has ever made of Lake Erie, the former reports having been issued from old army drawings made in the early part of the present century. These maps were always very inaccurate, as they showed points of land which have been, since the survey was completed, entirely washed away by the action of the water. The work now in progress will take some years to complete.

STEAM YACHT "HIAWATHA."

The handsome steam yacht "Hiawatha," built last year for Mr. Charles Fleischman, of Cincinnati, and member of the New York, Atlantic, Larchmont and other yacht clubs, was not found to be large enough for his requirements, so he determined to go back to the same builders and obtain just what the experience of last summer's cruising had shown him that he needed. This new steam yacht for Mr. Fleischmann was built by the consolidated firms of the Gas Engine & Power Co., and Charles L. Seabury & Co., at Morris Heights, and will be ready for her owner by June 1st.

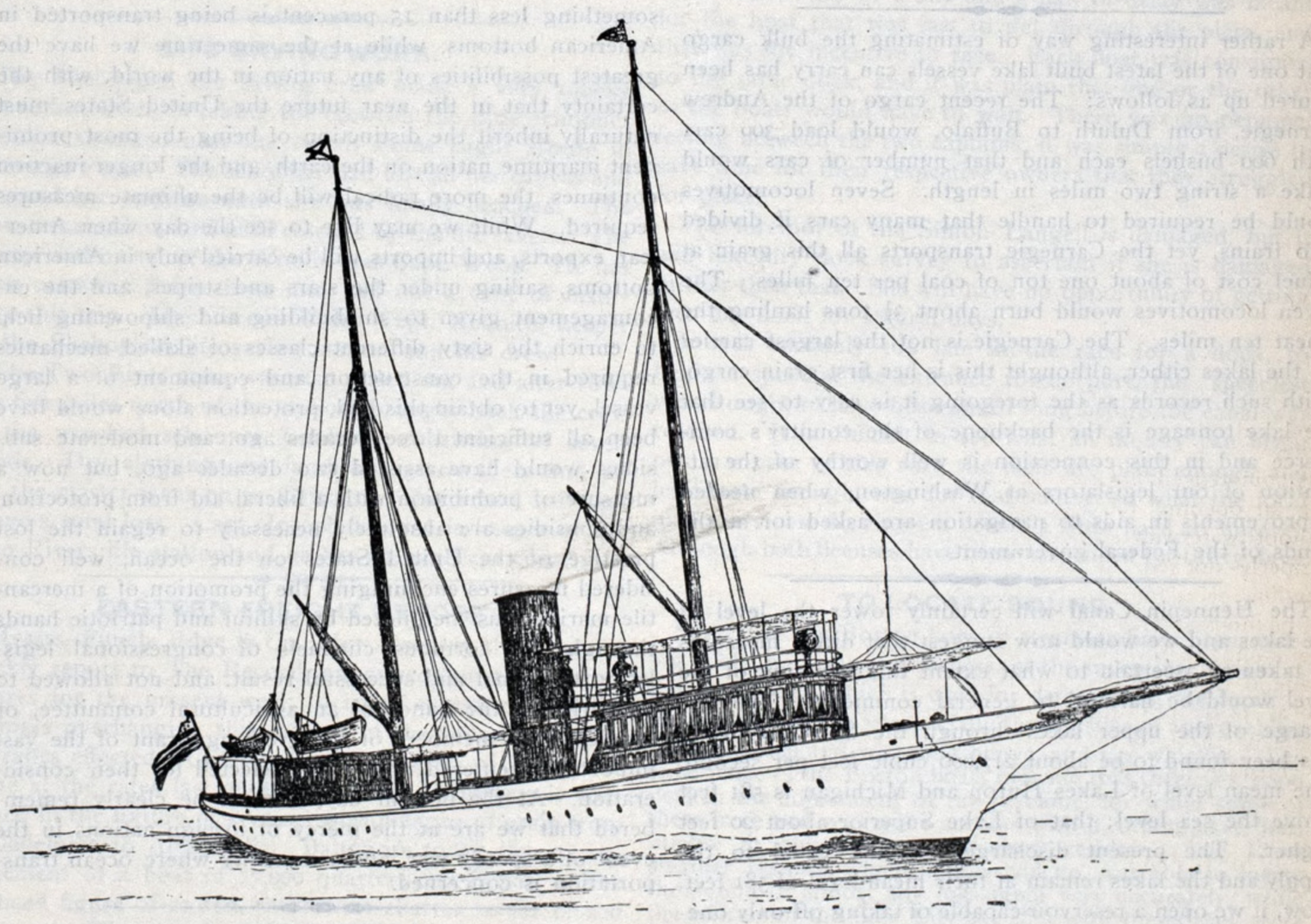
The new "Hiawatha" is of steel, and a model of comfort, luxury and elegance. No device imaginable to make life aboard not only safe, but enjoyable, has been omitted in her design. Every detail has been carefully studied, and as a result, something like the perfection of modern marine architecture has been produced.

The "Hiawatha" is 170 feet over all, 138 feet on the water line, 21 feet beam and 8 feet draught. She has accommodations for quite a large party, there being forward of the machinery two large state rooms for guests which are reached by the stairway from the deck. These are finished in white and gold, as, in fact are all the state rooms, and provided with full-sized brass bedsteads, dressing cases and toilet conveniences.

The yacht is steam heated throughout and lighted by electricity. She is fitted with a steam capstan, and will carry four boats, all lapstreak, one a 25-foot naphtha launch, one 20-foot gig, a 16-foot cutter, all mahogany finished, and a 12-foot dinghey, with oak finish, for use as a working boat in carrying supplies, etc.

The decks are of white pine and the bulwarks capped with polished teak. The yacht is to be schooner rigged.

The machinery consists of a Seabury safety water-tube boiler and triple-expansion engines, developing about one thousand horse-power. A speed of 18 miles per hour is guaranteed.



NEW STEAM YACHT "HIAWATHA."

170 feet long. Built by the Gas Engine and Power Company, and Charles L. Seabury & Company, Morris Heights, N. J.

This yacht was launched April 17, 1897, about 10 p. m. A large party witnessed the launching. The yards and yacht were beautifully illuminated with electric lights, Japanese lanters, etc. Capt. Smith is in charge and Chief Engineer Thompson will attend to the machinery.

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CLEVELAND, O., MAY 6, 1897.

We have received from the Department of Marine and Fisheries, Ottawa, Canada, a copy of the list of lights and fog signals on the coast, rivers and lakes of the Dominion of Canada, corrected to January 1, 1897.

The Hydrographic Office, U. S. N., Washington, D. C., have now for sale a cloud chart in colors, showing the various phases of the clouds and giving the names by which they are known. This information is necessary for any one keeping an abstract log or noting meteorological data.

A rather interesting way of estimating the bulk cargo that one of the latest built lake vessels can carry has been figured up as follows: The recent cargo of the Andrew Carnegie, from Duluth to Buffalo, would load 300 cars with 600 bushels each and that number of cars would make a string two miles in length. Seven locomotives would be required to handle that many cars if divided into trains, yet the Carnegie transports all this grain at a fuel cost of about one ton of coal per ten miles. The seven locomotives would burn about 3½ tons hauling the wheat ten miles. The Carnegie is not the largest carrier on the lakes either, althought this is her first grain cargo. With such records as the foregoing it is easy to see that the lake tonnage is the backbone of the country's commerce and in this connection is well worthy of the attention of our legislators at Washington, when needed improvements in aids to navigation are asked for at the hands of the Federal government.

The Hennepin Canal will certainly lower the level of the lakes and we would now suggest that direct measures be taken to ascertain to what extent this lowering of the level would be harmful to general commerce. The discharge of the upper lakes through the St. Clair River has been found to be about 217,000 cubic feet per second. The mean level of Lakes Huron and Michigan is 581 feet above the sea level; that of Lake Superior about 20 feet higher. The present discharge is about equal to the supply and the lakes remain at their mean level of 581 feet. Now, if we open a reservoir capable of taking off only one-twentieth of this supply, the corresponding decrease of levels ought to be easily estimated. Some years ago it was stated by an eminent authority that drawing off only 10,000 cubic feet per second would lower the mean level of the lakes from twelve to eighteen inches, and it seems probable that double the amount of waste would lower the level just so much more.

UPBUILD THE MERCHANT MARINE.

It is almost impossible to realize the reluctance with which congress deals in matters relating to or connected with the merchant marine, and especially towards legislation favoring subsidies to be allowed in special cases. The fact that cargo has to be carried to England so as to reach South American ports, ought to put our legislators to the blush. Eminent men, including politicians, economists, and patriots have pointed out time and again the suicidal policy of allowing other maritime powers to ride rough shod, as it were, over our national importance and geographical privileges. The pen and voice have been brought into action to awaken the country to the country's good, and yet inaction seems the order of the day. Over forty years ago the United States ought to have interposed in behalf of her merchant marine, instead of which every maritime nation has been permitted to a preeminence on the ocean, and we remain a rank outsider as regards the oversea commerce. As we have stated before, France, Germany, England, Austria, Italy, Norway and Russia have adopted the subsidy policy, so as to have a commensurate influence in the commerce and carrying trade of the world; hence, the United States can no longer remain indifferent to the fate of its mercantile marine, but should liberally endow her shipping with a subsidy, either under the name of a tonnage bill, adequate compensation for the carriage of mails to the several countries, premium, bounty, or any other term if the direct word subsidy is repugnant to the views of our legislators. The pioneer British trans-Atlantic line was subsidized to the extent of $1,551,600, represented as compensation for the carriage of ocean mails, while the American line, managed by Mr. Collins, was obliged to go under, when the protection was withdrawn, and the shipping industry has waned ever since, principally through the inability of our citizens to grasp the situation. At least such is the most charitable construction to place on the facts that are presented before the country. We have at length arrived at the stage where heroic measures are necessary to regain access to the markets which offer the best returns for our mechanical, natural, and agricultural products Treaties may stand in the way, but diplomatic relations had better be shattered rather than allow the nation's life blood to remain stagnated, and our maritime supremacy retarded for another century. In 1870 statistics show that we carried 91 per cent of our freight, while today something less than 15 per cent is being transported in American bottoms, while at the same time we have the greatest possibilities of any nation in the world, with the certainty that in the near future the United States must naturally inherit the distinction of being the most prominent maritime nation on the earth, and the longer inaction continues, the more radical will be the ultimate measures required. While we may live to see the day when American exports, and imports will be carried only in American bottoms, sailing under the stars and stripes, and the encouragement given to shipbuilding and shipowning help to enrich the sixty different classes of skilled mechanics required in the construction and equipment of a large vessel, yet to obtain this end, protection alone would have been all sufficient three decades ago, and moderate subsidies would have assisted two decades ago, but now a measure of prohibition with a liberal aid from protection, and subsidies are absolutely necessary to regain the lost prestige of the United States on the ocean, well considered measures encouraging the promotion of a mercantile marine must be piloted by skillful and patriotic hands through the tortuous channels of congressional legislation to a final and successful result, and not allowed to be buried in the hands of an agricultural committee, or squelched by members of Congress, ignorant of the vast importance centered in the bills selected for their consideration. At the present day, it must be clearly remembered that we are at the mercy of foreign nations in the event of a speedy war, and a nonenity where ocean transportation is concerned.

LAKE LEVELS.

The theory of septennial cycles of high water and minimum level, is or ought to be exploded, in the absence of any plausible reason being adduced to support it; and the same might be said of the sun spot system, which argues that because the solar mountains are visible, we should experience a rise over the entire body of water included in the lake district. If celestial objects (either the sun or moon) is to be admitted as exercising any influence at all, then a periodic rise and fall would eventuate, with the usual currents, and other ocean phenomena and observation does not tend toward a credence of this theory.

Of course, local fluctuations occur at frequent intervals, but these may very properly be ascribed to the natural conditions existing in the locality. For instance, a strong surface current induced by the action of the wind may sometimes be experienced in mid-lake, or when near port, through the effects of a heavy precipitation of rain after a period of comparatively dry weather.

The effects of the winter precipitation of rain over the entire watershed and area of the lake district, is not so clearly definable as an accepted theory ought to be. If it is admitted that fifty inches is the average annual precipitation of rain in the temperate zone, the maximum stage of water should be prevalent in the early and later portion of the season of navigation; and the minimum during the entire early period, yet such is not the case. Again, the fluctuations of the lake level would be discernible during a droughty period; and both under currents and surface currents would be experienced, meandering around to restore the equilibrium and supply the loss created by the large and constant exhaust.

The process of evaporation alone is a powerful agent, continually at work to lower the level of an expanse of water and yet even after the heated term no diminution of the lake levels are to be found.

There are some points of similarity between the great lakes and the Caspian Sea which is 740 miles long and 210 miles in average breadth and possibly deeper in some places than Lake Superior. The level of the Caspian sea remains stationary, because it is supplied by surface rivers, the outflow from the river Volga being no small quantity in itself. Yet all of this amount of water is annually being withdrawn from the surface of the Caspian by the process of evaporation and it canot be denied that a similar waste or exhaust is going on over the chain of lakes, to be supplied, as eminent authorities assert, simply by the precipitation of rain over the watershed tributary to the locality. Considering the immense outflow caused by the water finding its level, and the consumption used by the population, coupled with the partial waste caused by evaporation, we are not prepared to assert that submarine rivers do not exist. In fact there are very plausible reasons for believing that such an economy actually does exist and until the philosophy of the question is more fully developed the advocates of the submarine river theory may command an equal attention with the theorists who support other causes attributable to the ruling of the lake levels from purely surface supplies. It is, of course, admitted that even in the event of the lakes being kept at the usual depths by submarine springs, etc., the origin of the supply is from precipitation, but in such a case it is not from a surface inflow.

In referring to our cut of the tug, which the F. W. Wheeler Co., of West Bay City, Mich., will build for W. G. Wilmot & Co., of New Orleans, La., and published in last week's issue of the Record, the shipbuilders intend to get out a much finer vessel than ever they have built before for ocean service. The tug Wilmot, built for the same owners in 1892, is to be very much improved upon, and, as we understand it, she will equal if not be the peer of anything on salt water.

It is said that the frigate bird (fregata aquila) which is so well known to the sight of the ocean mariner, is a scientific aerial navigator, inasmuch that if caught in a cyclonic storm, such as the hurricanes which generate among the islands of the West Indies, they will at once determine possibly from instinct (yet in direct accordance with the methods now in use by mankind), the probable center, or path of the storm, and by guiding themselves on the wing they shoot off at right angles to the storms center. Dr. Porter has quaintly suggested that the instinctive knowledge practiced by the frigate bird is hereditary and that the specie had solved the problem of the laws of storms, anterior to boards of admiralty, navigators, or theorists, yet similar features are noticed in many animals, and to the laws of self-preservation whether arrived at by natural instinct or hereditary knowledge, may be ascribed the

seemingly human foresight of the frigate bird. Notwithstanding the fact that vices or virtues may be transmitted to posterity throughout the animal kingdom, yet there are characteristics in the lower creation which in many cases could not be classed in this category as clearly as it might be to the natural instinct of preservation. Hence if the frigate bird had but received one reasonfi
frigate bird had but received one lesson in the earlier stages of life it would have a wholesome dread of repeating the experience and guide itself accordingly, probably submitting a portion of this knowledge to its offspring.

The thanks of The Record are due the Globe Iron Works Co. for a courteous invitation to attend the launch of the large steel schooner Antrim, on Saturday morning, at 11 o'clock, standard time.

LAUNCH OF THE W. LE BARON JENNY.

The large schooner, tow barge or consort W. Le Baron Jenny, built to the order of the Bessemer Steamship Co., was successfully launched from the yards of F. W. Wheeler & Co., West Bay City, on Thursday afternoon last, and it is expected that she will be ready for work, May 10.

The W. Le Baron Jenny is 380 feet over all, 366 feet between perpendiculars, 44 feet beam molded and 26 feet depth, with a carrying capacity of 3,950 gross tons on a draft of 14 feet 6 inches. She has main deck beams, but no laid deck, except at forward and after ends, spar deck complete and forecastle deck forward arranged with a steel house for towing machinery. All accommodations for officers are in a steel deckhouse aft. There are 11 hatches 24 feet between centers. The double bottom is 4 feet 6 inches deep, built with cross floors of flanged plates on top of which are three longitudinals on each side of center keelson, supporting inner bottom. Collison bulk heads forward and aft in the ship extend up to the spar deck. The hold is divided into three compartments by two bulkheads, also extending to spar deck. The boat has a Williamson steam steering engine, deck hoist amidship, a Providence steam windlass and a capstan forward. Reversible capstans aft as well as amidship, two stockless 3,500-pound anchors forward and one stockless 1,200-pound kedge anchor aft. She is fully equipped with the necessary pumps for water ballast, steam and fire service, and an electric lighting plant with sufficient capacity to light all cabins, holds and decks.

The spars, which are not yet in position, will be of steel, and the foremast will be used as a funnel for the donkey boiler which is located forward under the forecastle.

Special attention has been given to details and to making the new schooner extra strong. The owners have been represented during the building by Robert Logan, marine engineer and surveyor, Cleveland.

THE WEST SUPERIOR SHIPYARD.

A dispatch from West Superior says: It is said Capt. Joseph Kidd, who recently announced his withdrawal from the superintendency of the American Steel Barge Co., will be succeeded by D. E. Ford, of New York. It is said the Rockefeller interest in the large company is being strengthened all of the time. The plant of the American Steel Barge Co. is regarded as one of the most complete on the lakes and is generally desirable property. In addition to its complete facilities for shipbuilding and repair work, it possesses the only dry dock at the upper end of the lakes, which is so taxed with work that the advisability of putting in another dock alongside the present one is being considered. Capt. Alex. McDougall, the manager of the barge company, says that this dock will surely be built within a year. John D. Rockefeller's interest in the property is in the form of bonds, which are held by a New York trust company which he controls.

On Saturday last the two whaleback barges built by the Erie Basin Dry Dock Co., Brooklyn, N. Y., and docked this winter for lengthening, 61 feet 4 inches, were relaunched within a few minutes of each other. The record of the yard shows that previous to the re-launching on Saturday thirty-nine whalebacks, three oil tank boats. one tug, and the tow barge "Constitution" have been launched at the barge works, within a space of eight years.

This is the third time that a double launch has occurred at this yard. On November 15, 1890, the first vessel built at the Superior yards was launched at 3:30 in the afternoon and thirty minutes after her, Barge No. 109 slid into the water. On April 28, 1891, Barges 110 and 111 were launched within ten minutes of each other, going in at 3:15 and 3:25 p. m. On June 21, 1891, the steel tug Islay was launched at 3 o'clock. At 3:30 the whaleback steamer Pillsbury, of the Soo Line, followed at 3:42 by the whaleback Washburn. All vessels were launched in forty minutes.

But this is not the only record held by the American Steel Barge Co. In the spring of 1892, commencing on April 10, the company completed and launched within eight weeks of each other, eight big freight carriers. During that year the company built eight steamers and three barges and in the year following, 1893, they built seven barges and two steamers, including the World's Fair vessel, Christopher Columbus.

WEEKLY FREIGHT REPORT.

There is anything but an encouraging outlook in the freight market at this time and even the most sanguine have to admit that rates cannot be mentioned, in fact there are none. Corn, from Chicago to Buffalo, at 1⅛ cents, oats 1 cent, and wheat 1¼ cents; wheat, Duluth to Buffalo, at 1¼ cents, with light offerings, coal up at 25 cents, and 20 cents respectively, is enough to keep boats tied up waiting for orders.

There is, however, a hopeful feeling for the near future and it is thought that along towards the end of the month the entire fleet will be pegging away and finding something to do.

A Marquette ore charter was taken this week at 50 cents to run up to September 1, and Escanaba cargoes at 40 cents.

GERMAN SHIPBUILDING.

The acme of German shipbuilding is represented by the new German express steamer Kaiser Wilhelm der Grosse, built at the Vulcan Works, Stettin, and it would appear that the new vessel will prove no unworthy compeer to the splendid boats now crossing and recrossing the Atlantic. The ship indicates about 28,000-horsepower, providing for a minimum speed of 22 knots. The chief dimensions are, between perpendiculars 625 feet, 66 beam, and 43 feet molded depth. The twin-screw engines are of the four-cylinder triple expansion type, with cylinders of 52, 90, and two of 97 inches diameter, with a stroke of 69 inches. The Kaiser Wilhelm der Grosse is considered the finest vessel ever built in Germany.

LIFE SAVING WORK.

The Sheboygan life saving crew made a very plucky rescue last week, in taking the crew off the little schooner Woolin, stranded near the North Point Light House in Thursday's gale. The schooner had lost all her canvas and dragged her anchors until she was finally beached. The crew remained aboard until rescued by the life savers. The master and owner of the Woolin was Capt. Webb. He has been castaway three times and had not a cent of insurance this trip. Much credit is due Capt. Nequith, keeper of the Sheboygan life saving station and his crew.

The Two River crew was also called out and after rowing five miles north of the station, brought back the crew of the wrecked schooner Lookout, consisting of seven hands. Dry clothing and food was given them and all but the master went on to Chicago. This vessel will also prove a total loss. Capt. Joseph Dionne is keeper of the Two Rivers life station and he has an excellent crew.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, in their regular weekly report to The Record, announce that their list of figures for the present week to some extent reflects the dullness overhanging this market in the reduced number of trades effected. Charters for full cargoes of grain continue at the rates last quoted; an item of interest is contained in the fixture of a vessel with a cargo of grain from Philadelphia to Alexandria. Baltimore today reports engagement of a boat of 17,000 quarters for Belfast at the reduced figure of 2s 1½d, the lowest charter so far closed this year. The charter reported for Shanghai equally indicates some reduction, and the demand for time boats has for the moment entirely petered out. The only trade commanding better rates is in timber charters from the Gulf, which more than hold their own.

Our market for sailing vessels shows no improvement since last week, but, with a moderate demand and continued scarcity of tonnage, rates are firm and unchanged.

COMMERCIAL TRANSPORTATION CO.

The Commercial Transportation Co., which is composed of Duluth-Superior mills, is making active preparations for the present season of navigation. The company has been organized to operate in connection with the Erie canal and is essentially an independent lake transportation line controlled by the millers at the head of the lakes. The Duluth News-Tribune says: "It is understood that the company is now making arrangements to charter boats for the season to transport the products of the mills of the members of the company from this point to Buffalo.

"It is understood to be the purpose of the Commercial Transportation Co. to charter two boats for the season and to charter other boats for single trips, or a number of trips, as they may be needed. It is expected that the head of the lakes mills will have two boats a week out of Duluth and Superior. John Williams has been employed by the company as agent at Duluth.

"The Commercial Transportation Co. is the result of what the millers claim to be unjust discrimination by the lake and rail lines in favor of grain as against grain products. The millers they say were paying more than they ought for the transportation of flour as compared with wheat, and began casting about for relief. The Commercial Transportation Co., with independent boats to Buffalo and the Wiman canal line from there to New York, has been the result. The operations of the line will be watched with interest this season. That a great amount of flour will be diverted from the lake and rail lines is certain, providing it is an average season for flour business." The canal project, however, is not as far advanced as it ought to be if the Wiman branch is to cut any figure this season, yet there are other boats in the canal trade, and temporary or season arrangements could easily be made.

TRYING TO SAVE TIME.

An investigation was held last week in Duluth by the local steamboat inspection board into the manner in which the steamers Simon Langell and Elfinmere entered the canal last Wednesday. Capt. Black, of the Langell, and Capt. Wilson, of the Elfinmere, were notified by Inspectors Monaghan and Chalk that their presence was desired for the purpose of making an official inquiry.

This is the first occasion of the kind that has called for an investigation in Duluth harbor. It is said the captains of the Simon Langell and the Elfinmere each understood that a day or a day and a half of delay was meant for the boat that was last to get through the piers, and that was the incentive to race. Each boat was consigned to the same dock, and it was plain that one or the other of the boats would have to wait. There was no personal feeling between the two captains; it was simply a desire to save time for their respective owners that they struggled for place.

The forefoot of the Simon Langell is damaged, but it will take dry dock survey to ascertain if she is damaged further than that. She will have no opportunity of getting into dry dock for several days.

It was certainly too late in the race for a dock, to begin a spurt at the entrance to the port, the speediest vessel ought to have been ahead long before the canal was reached. It is difficult to see what an inquiry can bring out in a case of this sort, the facts are plain enough and legitimate enough, too, for that matter, so what the local inspectors can do about it seems a little hard to unravel. Although both licenses have been suspended for thirty days.

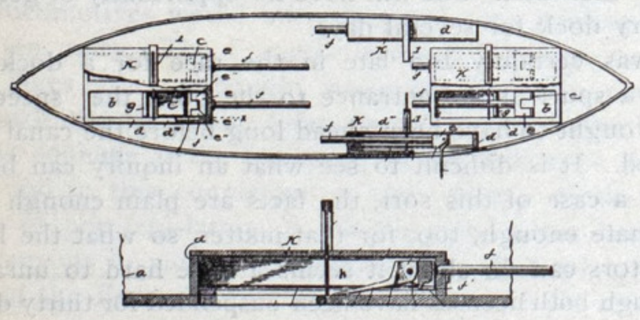
TO LOCATE SOUND.

Several of the Boston lines of steamers have been making trials, with varying success, of the invention known as the aurophone, which is used for determining the location of sound at sea; more especially the whistles of approaching steamers, bell and whistling buoys, and fog whistles. The experience of the Boston boats indicate that there is a good deal in the adjustment of the machine, for while some of them have had very good success with it, others have been unable to obtain any satisfactory results. The Plant steamer Halifax, which is now laid up, was able to locate the sound of almost any fog-signal very accurately, while the officers of the Gate City say that with theirs they were unable to do much more than they could with their own ears. When the machine can be made to work well it is an invaluable aid to navigation, especially for coastwise vessels, for any seafaring man will readily state that the inability to accurately place fog-signals is one of the greatest dangers of the sea, especially along the New England coast, where the fogs are thick at certain seasons of the year, and it is difficult to run courses accurately without depending on the signals, and the immense traffic going up and down makes the possibility of a collision in a fog a very real one.

RECENT MARINE PATENTS.

577,421. Reciprocating Propeller for Vessels. Harmon Compton, Dunmore, Pa.

In a propeller for vessels and in combination with a hull provided with openings therein, of a pair of twin propellers located in water-tight boxes at the bow and stern of the vessel and projecting beyond the lines of the hull, said propellers each consisting of a propeller-blade knuckle-joined to a head located within the lines of the hull of

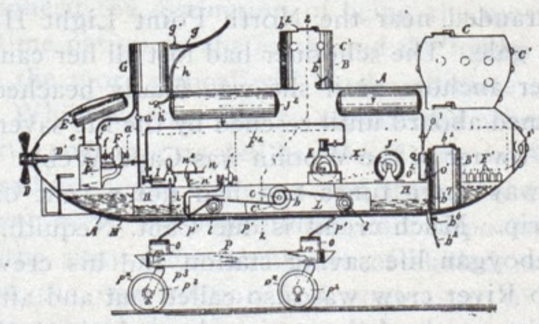


577,421.

the vessel, a driving-rod to which the head is secured, an internal box surrounding the openings and adapted to contain the head, and guiding mechanism within the box, all arranged and adapted to operate as described.

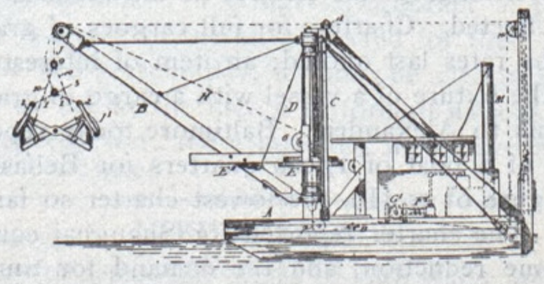
575,890. Submarine Wrecking Boat. William R. Hinsdale, Orange, N. J., assignor to Carroll P. Bassett, Summit, N. J.

The combination, with a submarine boat, of a traveling weight provided with wheels to run upon the bottom of the ocean, and connected with the boat by two hoist-ropes, the boat being adapted to lift and carry the weight when required, and provided with mechanism for winding and unwinding the ropes at pleasure. A boat having cylindrical body, with a hollow longitudinal keel adapted to carry water ballast, at each side of the center line, the keels also serving to steady the boat when resting upon the bottom. Having cylindrical body, with a hollow longitudinal keel adapted to carry water ballast, at each side of the center line, a longitudinal water-tank within the shell above each of the said keels and communication between each of the said tanks and the keel below it, as and for the purpose set forth. A hollow keel projected downwardly at each side of the center, of a traveling weight



575,890.

connected with concave saddles of suitable length to fit endwise between the keels and support the boat. With a mandrel supported in journals parallel to the side of the boat, a disk saw secured upon such mandrel with its edge projected outwardly from the boat, and means for rotating the saw at pleasure. A circular saw supported in bearings upon its outer side, means for rotating the saw, and electromagnets supported adjustably, adjacent to the saw, for magnetically grappling an iron wreck and pressing the saw thereinto.



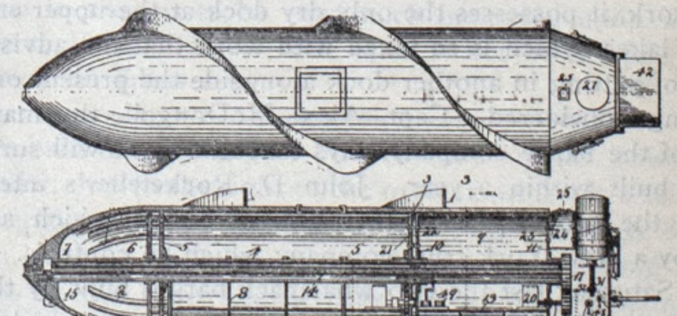
572,769.

572,769. Dredging Apparatus. William B. Pless, San Francisco, Cal., assignor to the Pless Dredging and Reclamation Co.

A dredging machine, the combination of a bucket with a movable counterbalance, devices connecting bucket and counterbalance together, mechanism for raising counterbalance and independent mechanism for raising the bucket. A chain connecting the bucket with the counterbalance, a winding drum, and an independent chain extending from the drum to the counterbalance, for hoisting the latter, and in combination with the latterally-swinging boom and the bucket suspended from said boom, an elevated structure on the hull having guide pulleys attached thereto, a chain extending from the bucket between said pulleys a vertically-movable counterbalance to which said chain is directly connected, and winding machinery connected to said counterbalance.

575,907. Submarine Vessel. John Scheubeck, Chicago, Ill.

A submarine vessel, an outer shell or casing provided with spiral propeller-blades, a tube rotatably mounted within said outer shell or casing, an inner casing ridigly



575,907.

mounted upon said tube adjacent the rear end thereof, a hollow shaft rotatably mounted within tube and rigidly secured to outer casing at its forward end, a motor within inner casing, gearing between motor and hollow shaft, and a receptacle for the propelling energy pendent from tube at about its middle portion and rigid with relation thereto, a drive-shaft mounted in bearings within tube and secured at its forward end to outer shell, gearing be-

tween drive-shaft and a motor situated within inner casing, and a rearward extension upon inner casing provided with rudders on each side thereof for steering vessel in a horizontal plane, a rudder having a horizontal plane mounted upon the rear end of rearward extension and adapted to steer vessel in a vertical plane, means for operating rudders, an anchor-box and windlass mounted upon rearward extension, means for operating windlass, and a vertical-movable pilot-house mounted within rearward extension.

LAKE AND RAIL ROUTE.

The recent report that the Baltimore & Ohio Railroad had made two important lake connections, one to Duluth and the Northwest, via Northern Steamship Line, and the other to Chicago and Milwaukee, via the Owen Line, through Fairport, O., has created some interest in the size and capacity of the docks at Fairport. Fairport is the Lake Erie terminus of the Pittsburg & Western Railroad, which, as is well known, is practically a Baltimore & Ohio property, although under separate management. Sor some years Fairport Warehouse & Elevator Co., which owns the docks and the facilities at that point, has been spending a great deal of money for the purpose of putting the plant in the very best possible condition to handle a very large lake and rail traffic. The docks are 1,200 feet in length and contain two steel frame iron clad warehouses, each 465x90 feet, with a capacity of 150,000 barrels, and there is, in addition, a one million bushel iron clad grain elevator. The channel is being dredged from the mouth of the river to the docks and, when completed, a depth of 18 feet of water will be maintained.

THE TURBINIA.

A few weeks ago we recorded the attainment of 32.25 knots by the English-built "destroyer" Star, a speed which gave her the right to the title of the fastest vessel afloat, and now the Turbinia, a vessel only about one-seventh of the destroyer's displacement, has literally jumped half a knot on this speed, and thus holds the record with 32.75 knots.

This wonderful speed was attained during a series of trials by Prof. Ewing, F.R.S., that commenced on April 9th, and concluded on the 14th. When the full speed trials were taken the unprecedented mean speed above mentioned (of 32¾ knots) on the measured mile was realized. On several days the sea was rough, but throughout there was no perceptible racing of the screws, and the engines worked with perfect smoothness and a complete absence of vibration. The turning and circling tests were entirely satisfactory, and a test for acceleration showed that the boat could be started from rest to 28½ knots' speed in 20 seconds, and brought to rest from this speed in 35 seconds. The boat was built by the Marine Steam Turbine Co., Limited, for the purpose of testing the application to marine propulsion of Mr. Parsons' compound steam turbine engine.

SPECIAL NOTICE TO TRADE AND CONSUMERS.

Discharged and ex-employes of this company are making false claims as to the founding of this company and the manufacture of its goods. For the benefit of the public we will say that this company was founded in the year 1872 by Charles Foster, Jr., and Henry S. Winans, who associated with themselves as superintendent Mr. John H. Deming, who has had entire charge of the manufacturing department. Mr. Deming has been with this company continuously since 1872, and is at present our general superintendent. He has had thirty-four years' continuous experience in the manufacture of fine mechanical rubber goods. This long experience places Mr. Deming in the front rank of manufacturers. We believe him to be without a peer. Rainbow packing was suggested by a prominent merchant to C. H. Dale, then general sales agent, and with all other goods made by this company was introduced to the trade solely by Mr. Dale; and Mr. John H. Deming is the only man who has ever manufactured Rainbow packing, and is the only man who knows how. We would also say that Mr. Deming is the only superintendent this company has employed, or had in its employ as superintendent, since it was founded in 1872. All other claims are false.

PEERLESS RUBBER MFG. CO.,
(Signed) C. H. DALE,
President and General Manager,
16 Warren Street, New York.

PROPOSALS.

U. S. Engineer Office, 185 Euclid avenue, Cleveland, O., April 5, 1897. Sealed proposals for reinforcing, with stone, the jetties at entrance to Port Clinton Harbor, O., will be received here until 2 o'clock P. M., standard time, May 7, 1897, and then publicly opened. Information furnished on application to Jared A. Smith, Col., Engineers.

U. S. Engineer's Office, Telephone Building, Detroit, Mich., April 17, 1897. Sealed proposals for dredging Black river, at Port Huron, Mich.; Bar at mouth of Black river, Mich.; Belle river, at Marine City, Mich., and Clinton river, Mich., will be received here until 12 o'clock noon, standard time, May 7, 1897, and then publicly opened. Apply here for information. G. J. Lydecker, Lt. Col., Engineers.

FOR SALE.

Elegant steam yacht (cabin), length 58 feet over all, beam 9 feet, draft 4 feet, steel hull, Westinghouse engine, 40 h. p.; equipped for cruising; cost $15,000; will sell for $2,500. Full particulars can be had by addressing A. W. Roth, 153 La Salle street, room 906, Chicago, Ill. 17